DOCUMENT RESUME

ED 264 369 CE 042 417

AUTHOR Wangberg, Elaine G.; And Others
TITLE Adult Literacy Project: Development, Evaluation and Dissemination of Interactive Microcomputer Software. Final Report.
INSTITUTION New Orleans Univ., La.
SPONS AGENCY Louisiana State Dept. of Education, Baton Rouge. Bureau of Adult and Community Education.
PUB DATE 31 Jul 85
GRANT ABE-7-85
NOTE 63p.; For a related document, see EJ 320 929.
PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Adult Basic Education; Adult Literacy; *Computer Assisted Instruction; *Courseware; Information Dissemination; Instructional Material Evaluation; Interaction; *Language Experience Approach; *Literacy Education; Material Development; Microcomputers; *Online Systems
IDENTIFIERS 310 Project

ABSTRACT

The Language Experience Approach (LEAP), a literacy education method based on the premise that reading is a by-product of the student's thinking and oral expression, was used as the basis of two series of interactive microcomputer lessons designed to improve adult reading and writing skills. In the three years following the creation of the software, called LEAP I and LEAP II, four pilot studies of the courseware indicated that students using the materials gained from several months to one year in reading ability. In 1984-1985, a project was undertaken to develop, evaluate, and disseminate the LEAP materials. The following were among the major accomplishments of the evaluation and dissemination project: administration of pre- and posttests to evaluate the reading and writing skills of scientifically selected experimental and control groups; refinement of the LEAP I software to make it more automatic and to make the individual portions of the lessons more accessible to adult basic education (ABE) students and teachers; dissemination of the materials and provision of training in their use to a wider range of ABE teachers; establishment of a walk-in computer center for development of adult literacy in the College of Education at the University of New Orleans; and dissemination of the LEAP I and II software to agencies and professional organizations. (The appendix contains the following papers: "A Microcomputer Approach to Developing Functional Literacy among Adolescents and Adults," "Evaluating an Interactive, Language Experience Based Microcomputer Approach to Reduce Adult Illiteracy," and "Developing a Basic Holistic Writing Scale to Improve the Writing of Remedial Adolescents." (MN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

BEST COPY AVAILABLE

ED264369

FINAL REPORT

ADULT LITERACY PROJECT:
Development, Evaluation and Dissemination of Interactive Microcomputer Software
July 31, 1985

College of Education
University of New Orleans:
Elaine G. Wangberg, Ph.D.
Patricia M. Meisner, M.Ed.
Kathleen U. Busick, M.A.

State Board of Elementary and Secondary Education
Felician Fourrier, S.C., President

Dr. Claire Landry	Dr. John A. Bertrand
Jesse H. Bankston	Milton Hamel
Mrs. Gloria J. Harrison	Jack A.Pellegrin
Mrs. Martha Scott Henry	A. J. "Sookie" Roy, Jr.
Keith Johnson	Marie Louise Snellings

Grant No. ABE - 7 - 85

Bureau of Adult and Community Education
Louisiana Department of Education
Thomas G. Clausen, Ph.D.
State Superintendent

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

E Wangberg

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

The project herein was supported by a grant from the State Board of Elementary and Secondary Education through the U.S. Department of Education, as authorized by the Adult Education Act (Public Law 91-230 as amended).

CE 042 417

ADULT LITERACY PROJECT:
Development, Evaluation and Dissemination of
Interactive Micrcomputer Software
July 31, 1985

Final Report
ABSTRACT

Purpose

In previous years the Adult Literacy Project has developed two series of language experience based interactive microcomputer software to develop reading and writing skills in adult basic education students. The purpose of the 1984-85 Adult Literacy Project for the Development, Evaluation and Dissemination of Interactive Microcomputer Software was five-fold. This included first, to implement formal evaluation of the LEAP I and LEAP II, software including evaluation of both reading and writing abilities; second, to refine the programming of LEAP I software to increase automaticity and usability; third, to train teachers in the program's use and to disseminate knowledge of the program to adult basic educators; fourth, to create a walk-in center for the development of literacy; and finally, to further disseminate the LEAP I and II software to agencies and professional organizations.

Description

Formal evaluation of the effect of LEAP I and LEAP II software was conducted by implementing two field tests, including experimental and control groups. The results of these field tests were promising. In Field Test 1, experimental students showed approximately one year of reading growth as compared to less than one year of growth on the part of the control students. In Field Test 2, experimental students grew approximately two grade levels, and the control group showed no change in grade level.

During the field testing, the Basic Holistic Writing Scale was developed by project personnel in conjunction with a staff member from the University of New Orleans English Department. This was used to evaluate the writing growth of our adult basic education students during the field tests.

The LEAP I series of software was refined in a number of ways to enhance its user-friendliness, speed of operation, and usability by teacher and student. Additional refinements were made to improve educational benefits to be obtained from the program.

Additionally, dissemination of the program to teachers and adult basic educators, as well as to other educational professionals was accomplished through demonstrations, presentations, and publications. For the first time, classroom teachers were used as LEAP instructors and aides during our field test, with positive results.

The College of Education microcomputer center at the University of New Orleans was reserved one hour daily for use by

adult basic education students to develop literacy and was used as the site of field testing.

Finally, progress was made toward the goal of becoming a nationally validated program and a National Diffusion Project. This consisted of having our field test design approved by a technical assistance group, submitting our results to this group, and receiving their recommendation for one more field test to increase the number of experimental and control group subjects.

Recommendations and Conclusions

There is a need for further rigorous testing of the effect of the LEAP software on students' reading and writing abilities. This need comes about due to the serious attrition problem encountered in adult basic education. While excellent progress with promising results has been accomplished in this year's field tests, a study of the effect of LEAP software on additional students is needed for significant evaluation. Toward this end, plans are currently underway for a final semester of testing the LEAP software, as recommended by our national technical assistance group. Should this testing continue to be positive, the Adult Literacy Project will have the opportunity to present its program and results to the Joint Dissemination Review Panel in Washington, D.C. This could result in being named a National Diffusion Project, which would bring further validation, attention, and funding to the project and allow the LEAP series to reach more adult basic educators and students.

It is also recommended that the LEAP software series be further disseminated to education professionals and community agencies through presentations, demonstrations, and publications. In addition, it is recommended that the Basic Holistic Writing Scale, developed for use with LEAP field testing, be disseminated to adult basic education professionals.

PURPOSE

Illiteracy is one of the problems facing our state and our nation. Not only do we have serious numbers of illiterate adults, but many adolescents have dropped out of our schools or have graduated from our schools without acquiring basic reading and writing abilities.

While gains have been made in the field of adult reading instruction, further research and development in the areas of instructional techniques, materials and evaluation are needed. In general, techniques used for such instruction closely parallel the traditional approaches used in the schools, although adult basic education teachers usually try to achieve a higher degree of individualization. Educational materials at beginning readability levels tend to have vocabulary, syntax, and topics appropriate for the primary age, and usually middle class student. The Lanugage Experience Approach to reading instruction offers a solution to this difficulty of locating appropriate materials and a route toward functional literacy for adult and adolescent remedial readers.

The theoretical basis for the Language Experience Approach (LEA) is that reading is a byproduct of the student's thinking and oral expression. The material to be read in this approach consists of the learner's own experiences, encoded in his or her own language patterns. The use of student-generated material as reading content makes reading and writing meaningful and facilitates learning because the student has the experiential

background and language structures necessary to understand the material (Hall, 1976, 1979; Spache & Spache, 1973).

Traditionally, LEA reading lessons have included dictation of stories by students to a teacher, who writes them for the students. Further reading instruction, appropriate to the individual learner, stems from this dictated text. Thus individualization is a key aspect of the approach (Hall, 1976; Schwartz, 1975). However, effective indiviudalization of reading material and learning experiences for each student could overwhelm even the most efficient teacher.

Technology may hold the answer to individualizing language experience, or whole language, reading lessons. Computers have the capability of providing individualized instruction. Over the past three years, the University of New Orleans Department of Curriculum and Instruction has developed two series of interactive microcomputer Langauage Experience Approach lessons for improving adult reading and writing skills (LEAP I and LEAP II). Initial pilot studies of each series were conducted at the Adult Education Center in New Orleans and gains of several months to one year in reading ability were shown in each of four pilot studies done with the LEAP I and LEAP II software. These results are very encouraging; however, the primary purpose of these pilot studies was to ensure the workability of the microcomputer software. Rigorous testing of the effect of the LEAP I and II software on reading and writing ability was needed.

The purpose of the 1984-1985 Adult Literacy Project for the Development, Evaluation and Dissemination of Interactive

Microcomputer Software was five-fold. First, there was a need for formal evaluation of the LEAP I and LEAP II software, including reading and writing pre and post testing for scientifically selected experimental and control groups. Second, there was a need for refinement in programming of the LEAP I software so that it was more automatic and so that lesson portions were easily accessible by the teacher and student. Third, there was a need for further teacher training and dissemination to adult basic educators in conjuntion with the software. Fourth, there was a need for the establishment of a walk-in microcomputer center for the development of adult literacy in the College of Education at the University of New Orleans. Finally, there was a need to further disseminate the LEAP I and II software to agencies and professional organizations.

OBJECTIVES ACCOMPLISHED

I.A. Formal Evaluation of LEAP I and LEAP II Software

Two rigorous field tests to examine the effect of the LEAP I and II software on the reading and writing abilities of adult remedial readers were conducted and are summarized below.

Design

Two field tests using control and experimental groups were designed to evaluate the LEAP series of software (including LEAP I and LEAP II). The design utilized the Degrees of Reading Power (DRP) test, Levels 6 and 8, Forms A and B, as pre and post instruments. This test was chosen for a number of reasons: it is current, is normed with a sample representative of national characteristics, appropriate in content for older students, emphasizes reading comprehension, and does not overrely on grade level score comparisons. The latter is important with older learners, as their ages are not typical of the school aged normative samples used for most standardized tests. In addition, the DRP does not require time limits for testing. Since older subjects tend to respond more slowly than younger subjects, time limits may lower their scores and not indicate true ability (Sheehy, 1976).

In scoring responses on the DRP, raw scores are converted to

mid-instructional reading level DRP scores, measured in DRP units. A DRP unit is a numerical representation of reading comprehension. Test forms range from grade 3 through grade 14 reading ability, but these grade recommendations are approximate because each form measures a wide range of reading ability. Each test form is equated to all other DRP test forms, and all results are reported on a common scale. Unlike conventional standardized tests, which use different tasks in different grades and assume a normal distribution of abilities in each grade, the DRP uses a single reading task (similar to cloze passages) and makes no assumptions concerning the distribution of abilities within grades. This provides important flexibility in assigning an appropriate test level for a given student.

Growth is interpreted by comparing pre and post DRP unit scores. If desired, DRP unit scores can be converted to grade level scores using the DRP national norming tables. The grade level scores utilized below indicate the student has fallen at or very near the fiftieth percentile for that grade on DRP norming conversion tables.

The design of the field tests included a DRP pretest for both the Experimental and Control Groups, traditional reading/language arts instruction (Control) or the LEAP microcomputer instruction (Experimental), followed by an alternate form DRP post test.

The design further included evaluation of the effect of the

LEAP I and II software on the writing ability of adult basic education students. For this purpose, a consultant from the Univerisity of New Orleans English Department was hired, and in conjunction with Adult Literacy Project staff, a holistic scale appropriate to evaluating this population's writing needs was designed. This consultant also trained Project staff in the scale's use. Pre and post treatment writing samples were obtained from experimental and control subjects. These writing samples were rated by trained Adult Literacy Project staff in a blind rating. (All writing samples were coded so the rating staff knew neither which students produced the writing, nor whether the writing samples were produced pre or post treatment).

Sample

The sample was drawn from the student population enrolled at an Urban League Street Academy for high school dropouts and adults without high school diplomas. Student ages ranged from 17 to 27. All 84 enrolled students were pretested with the DRP test, Level 6 or 8.

Fifty-nine students fell within our range of interest, receiving DRP unit scores between 30 and 55. DRP norm tables suggest this would correspond to reading levels of approximately grade 3 to grade 7. Students scoring lower or higher than this were not further considered to be part of the sample, as the lower scores were on the extreme low end of the DRP and, therefore,

likely to be less valid, and students scoring above grade 7 were likely to profit more from instructional programs designed for better readers.

These 59 student pretests were ordered by DRP score and stratified into three groups: low (DRP of 30 to 40); mid (DRP of 41-50); and high (DRP of 51-55). The maximum size instructional group was determined to be 20 students due to the number of microcomputers available. The study sample of 59 students was drawn equally from these three groups using a table of random numbers. These subjects were then assigned randomly to the Experimental Group 1, Experimental Group 2, or Control Group.

Treatment

Two independent eight-week field tests were then conducted. During the first semester, Experimental Group 1 and the Control Group were studied. An eight week period of instruction occurred for each group. The Control Group received traditional reading/language arts instruction, and Experimental Group 1 received language experience based microcomputer instruction (the LEAP I and LEAP II series). Average total hours of instruction for the Control Group was 22.1. Average total hours of instruction for the Experimental Group was 21.7.

During the second semester, Experimental Group 2 and the Control Group were studied. Again, the Control Group received

traditional reading/language arts instruction and Experimental Group 2 received LEAP I and LEAP II series reading instruction. Average total hours of instruction for Experimental Group 2 was 15.6, and 17.95 for the Control Group.

Findings from Field Test 1

Both attendance and attrition tend to be areas of difficulty in adult basic education research and instruction. Because students are not required to attend instructional sessions, attendance tends to be irregular, and attrition rates are high. In this study, 10 of the Control Group students were available for post testing, and 11 of the Experimental Group students were available.

The mean pretest score for the Control Group was 40.9 DRP units, equivalent to grade 5, with a range of 28 to 55 DRP units. The mean pretest score for Experimental Group 1 was 42.5 units, also equivalent to grade 5, with a range of 30 to 54 DRP units. The mean post test score for the Control Group was 43.5, with a range of 29 to 57 DRP units; the mean post test score for Experimental Group 1 was 48.1, with a range of 36 to 59 DRP units. The average gain in reading ability for the Control Group was 2.6 DRP units; the average gain for Experimental Group 1 was 5.6 DRP units. If one wished to convert this to show grade level growth, the Control Group showed no change in grade level, and Experimental Group 1 showed a one year increase to grade 6.

In the study of the effect of LEAP I and II on the writing ability of adult basic education students, pre and post test scores on the Basic Holistic Writing Scale (developed for this project) were studied. Due to testing conditions and overtesting (combined testing demands of Urban League Street Academy and our testing design), we do not believe valid information was gained on writing growth.

The Experimental Group 1 showed a pre test mean score on this scale of 51.4 and a post test mean score of 50. The Control Group showed a pre test mean score of 45.3 and a post test mean score of 46.6. Thus, there was very little difference in the mean scores of the two groups over the treatment period. Statistical analysis using a t-test shows that there is no significant difference between the groups. The Basic Holistic Writing Scale, developed with this year's project, appears to hold promise as an important evaluation instrument for remedial older adolescents and adults, but testing design and conditions need modification.

Findings from Field Test 2

A second eight week field test was conducted within an experimenal sample (Experimental Group 2) drawn from the original Urban League Street Academy population described above. The original Control Group was retained. As in the first field test, the Control Group received traditional reading/language arts

instruction. Experimental Group 2 students received language experience based microcomputer instruction (LEAP I and II). Attendance was irregular throughout this field test with several major interruptions in instruction. Eight students were available for post testing, four in Experimental Group 2 and four in the Control Group.

The mean pretest score for the Control Group was 44.5 DRP units, equivalent to grade 5, with a range of 29 to 57 DRP units. The mean pretest score for Experimental Group 2 was 53.66 DRP units, equivalent to grade 7, with a range of 41 to 62 DRP units. The mean post test score for the Control Group was 43.25 DRP units, with a range of 24 to 66 DRP units; and the mean post test score for Experimental Group 2 was 62.5, with a range of 50 to 83 DRP units. The average gain in reading ability for the Control Group was -.5 DRP units; the average gain for Experimental Group 2 was 8.5 DRP units. Converted to show grade level growth, the Control Group showed no change in grade level, and Experimental Group 2 showed approximately a two year growth to grade 9. The results of a comparison of post test scores indicate a significant difference between Experimental and Control Group scores ($p<.05$).

Examination of writing growth using the Basic Holistic Writing Scale showed no significant difference in mean scores for writing samples between the Control Group and Experimental Group 2. The mean writing pretest score for Experimental Group 2 was 55.00 ($n=3$), and the range was 9 (51-60). The Control Group mean was

50.00, (n=4), and the range was 26 (36-62). The post-treatment writing sample mean score for Experimental Group 2 was 57.25 (n=4), and the range was 42 (31-73), while the post-treatment writing sample mean score for the Control Group was 43.25 (n=4), and the range was 22 (31-53).

Several factors affected the outcome of the holistic writing assessment. Linking the completion of writing samples to DRP testing created time problems which led to sketchy and incomplete writing samples from many students. Since the DRP test is not timed, the writing sample was gathered immediately after a testing session lasting more than an hour for a substantial number of students. Fatigue and over-testing are both possible factors affecting the results reported. In addition, the medium used for gathering writing samples may have played a role in the results. Students who regularly wrote lengthy paragraphs at the microcomputer completed pencil and paper writing samples of three sentences or less. Further study is needed to adequately assess the effectiveness of the microcomputer treatment on writing development.

It should be noted that the Basic Holistic Writing Scale itself proved extremely accurate. Writings were rated separately by two readers, with a third reader being called to rate any samples on which the original readers disagreed by more than four points overall. The third reader was needed in only 12 of the 167 cases. Agreement between the two readers was 93 percent.

Additional field testing using the Basic Holistic Writing Scale is warranted.

Discussion

While the sample size is small and attrition a problem, these field tests, as well as previous pilot studies, indicate that a microcomputer approach utilizing appropriate instructional software can hold promise for promoting functional literacy among illiterate adolescents and adults. Test results and observation also indicate that language experience based software is appropriate for improving the reading abilities of this population.

Our observations indicated that many of these learners were somewhat afraid of the microcomputer at first. Some of the adolescents and young adults had "fortified" themselves with certain substances before the first few days of instruction as reported by their teacher and our observation. This decreased after one or two days, as the students began to relax and enjoy the microcomputer.

The self-confidence of the subjects appeared to increase as they progressed through the program. Discipline was no problem which surprised their regular teacher, who reported different behavior using traditional classroom instruction with the same subjects. The students demonstrated initiative and independence by quickly finding their disks or printouts at the beginning of each

session and in getting and remaining "on task". Similar gains in self-confidence and motivation as a result of microcomputer instruction have been reported by others (Fisher, 1984).

Comments such as "Micro, I like talking with you," and "He always remembers what I say," were frequent. While we might have expected younger students to personify the computer, it was somewhat surprising to see older learners doing so. The computer appeared to have an almost therapeutic effect on many students, providing highly personalized instruction and interaction which seemed important and effective with these learners. These effects are not due to the computer alone -- they depend on the software being used.

All of the pilot and field test studies conducted thus far by the Adult Literacy Project are, of course, necessarily limited. The number of subjects in each study is not large, and the attrition rate is problematic -- a typical difficulty with adult basic education research. We can, however, see that each experimental group did show growth. While additional evaluation is necessary, it appears that the microcomputer, used with appropriate software, may provide hope for extending the reach of the teacher with high need students, providing a greater degree of individualization than was previously possible. This should allow teachers additional instructional opportunities, freeing them from some of the routine tasks of student instruction and allowing them to concentrate on individual instruction without detracting from

the level of instruction available to other members of the class.

Used this way, the microcomputer can become more than a novelty and more than a tool. The microcomputer used with high quality software can extend the power of the teacher and the student, truly becoming an "instrument of education and of educators" (Block, 1984).

I.B. Teacher Demonstration and Training

Previous pilot studies had all been conducted utilizing Adult Literacy Project personnel as teachers utilizing the LEAP I and II software. No previous effort to examine the use of regular classroom teachers as LEAP instructors had been made. During this year, however, teachers from the Urban League Street Academy were trained prior to the field tests, and were utilized as LEAP instructors who assisted students in their microcomputers lessons, conducted teaching activities with the microcomputer at the teacher station, and supervised students doing follow-up reading exercises. Adult Literacy Project personnel were also present in these capacities during all field testing. It was found that although there was some initial hesitation at the use of the microcomputer, the teachers from the Street Academy became quite capable and enthusiastic users of the LEAP I and II microcomputer approach to reading and writing instruction.

II.A. Refinement of LEAP I

LEAP I programming was refined in several distinctly useful ways. First, the Teacher Station program which generates the student printout was programmed to work automatically, as does the Teacher Station program in LEAP II. This served to make it more user-friendly for the teacher and also to speed up the operation of the microcomputer used at the Teacher Station, thus allowing more contact with greater numbers of students.

Second, the LEAP I lessons were entirely reprogrammed so that each lesson now consists of independent lesson modules. The existence of these individual modules allows students to take as long as they need on individual lesson portions. If a student does not complete an entire lesson during a class period, s/he may return to that lesson at a future time without causing either the teacher or student to redo any activities that were previously completed by the student. This saved teacher and student time and frustration and resulted in a more user-friendly and professional product.

Third, during it s former state, LEAP I suffered from a string space problem which caused slow calculations by the microcomputer. The above-mentioned reprogramming and some other enhancements have served to solve this string space problem. Finally, the audio tapes in the former
LEAP I lessons occasionally suffered from a lack of synchronization with the video screen. This problem was solved with reprogramming.

In addition to the above stated objectives, several of the lessons were revised and reprogrammed, becoming more educationally sound

and providing greater benefit to the student users.

II.C. Examination of Word Processing Applications for Teacher and Classroom

Adult Literacy Project personnel all became familiar with the use of word processing. In addition, use of word processing to construct individual lessons appropriate to a teacher's particular students was stressed in the rewritten and reprinted manuals to accompany the LEAP I and LEAP II software. Further, an introduction to and demonstration of word processing capabilities in the classroom was included in a presentation to the Adult Education Institute held at the University of New Orleans July 16, 1985. Finally, a word processing program and computer were made available to our experimental students to utilize in free writing time while they were awaiting their turns at the microcomputers to do LEAP lessons.

III. Dissemination to Adult Basic Educators

Dissemination of the LEAP I and LEAP II reading software to adult basic educators and literacy groups was conducted over the past year in several ways. These have included:

a) Presentation and publication of a paper to the Adult Education Research Conference in Tempe, Arizona. (See Appendix A.)

b) An exhibit at the International Reading Association

annual conference in New Orleans, Louisiana.

c) A presentation and hands-on demonstration to the Greater New Orleans Writing Project at the University of New Orleans.

d) A presentation and hands-on demonstration to the Adult Education Institute at the University of New Orleans.

e) Presentations to Urban League national and New New Orleans personnel.

f) A presentation to Operation Mainstream (a volunteer literacy program) in New Orleans, Louisiana.

g) A hands-on demonstration at the Louisiana Association of Professionals of Continuing and Adult Education in Baton Rouge, Louisiana.

h) A presentation and demonstration to the Ford Motor Company and Eastern Michigan University in Ypsilanti, Michigan.

i) Description of the LEAP program in the National Adult Literacy Project (NALP) handbook, GUIDELINES TO PROMISING PRACTICES.

Further dissemination accomplished during this year is described under Objective V.

IV.A. Development of a Walk-In Center for the Development of Adult Literacy in the College of Education, University

of New Orleans

The computer center in the College of Education at the University of New Orleans was reserved for one hour daily for the purpose of training adult basic education students utilizing the LEAP I and II software to improve reading and writing abilities. This center served as our field test site for Objective I.

IV.B. Use of the Microcomputer Center to Provide Training for Teachers on the Use of Microcomputer Applications to Education

The microcomputer center was utilized to train teachers on the use of microcomputers in education. Preservice training was provided to Street Academy teachers who would assist in the field test in this center. Additionally, it was used for presentations and hands-on demonstrations to the Greater New Orleans Writing Project and the Adult Education Institute.

V.A. Application to be Considered as a National Diffusion Project

This objective was partially completed. Having been named a "High Quality Educational Program" by the 1984 Search Effort of the U.S. Department of Education, the Adult Literacy Project has begun the process of applying to become a National Diffusion Project as part of the National Diffusion Network. We have worked in liaison

with a technical assistance group (Matrices), assigned by the U.S. Department of Education, in preparation for appearing before the Joint Dissemination Review Panel in Washington, D.C. The technical assistance group has approved the Adult Literacy Project's experimental design for research on the effects of the LEAP software on adult basic education students' reading and writing abilities. Two independent field tests were conducted utilizing this design (see Objective I), and results were reported to Matrices for analysis.

Due to the high attrition rate at the Street Academy, and hence our low number of subjects, Matrices has indicated we need an additional semester of field testing (more subjects) prior to our appearance before the Joint Dissemination Review Panel. Plans for this further testing are underway, and with continued funding, we will accomplish sufficient successful field testing to apply to become a National Diffusion Project. Being named a National Diffusion Project would provide great acceptance, visibility, and further funding for the Adult Literacy Project and the State of Louisiana.

V.B. Dissemination through the National Adult Literacy Project

A description of the LEAP program appeared in the National Adult Literacy Project handbook: GUIDELINES TO PROMISING PRACTICES.

V.C. Presentation of the Adult Literacy Project at Professional Conferences and through Publications

The bulk of the dissemination efforts of the Adult Literacy Project are described above under Objective III. In addition to those dissemination efforts, these were also accomplished:

a) Publication -- A Microcomputer Approach to Developing Functional Literacy Among Adolescents and Adults, accepted in COMPUTERS IN THE SCHOOLS, Winter, 1986. (See Appendix A.)

b) Publication -- Directions and Developments in Microcomputer Applications in the Schools, THE CLEARING HOUSE, (in press). (See Appendix A.)

c) Publication -- A Basic Holistic Writing Scale, (a description of the scale developed by the project to rate adult basic education students' writing) is in progress and will be submitted for publication.

OBJECTIVES PRECLUDED

II.B. Translation of LEAP II to the Apple IIe, Apple MacIntosh, or IBM PC microcomputer.

Funds for this portion of the grant were cut, hence this objective was not attempted, nor completed.

V.A. Application to be Considered as a National Diffusion Project

Accomplishment of this objective was partially precluded. The

Adult Literacy Projects is currently in the technical assistance phase of applying to become a National Diffusion Project. The technical assistance group with which we are working (Matrices) has recommended that we conduct one more semester of field testing of the LEAP software in order to obtain sufficient numbers of subjects to verify our promising results.

RECOMMENDATIONS AND CONCLUSIONS

The following recommendations are made in order to continue dissemination of the LEAP I and LEAP II programs and to bring national recognition to the programs and the state of Louisiana. The serious attrition problem at the Street Academy, whose students were utilized in the field tests of the LEAP software, led to a low number of subjects in both the Experimental and Control Groups during the field tests. Although extremely promising results have been obtained in initial pilot studies (during previous years) and in this year's field tests, further study of the effect of LEAP software on additional students is needed. It is therefore recommended that the Adult Literacy Project carry out one more field test in order to maximize the number of subjects tested with the software, thereby gaining significant evaluation results. Plans for this field test, to be held during the Fall 1985 semester, are currently underway.

Results of a further field test will be reported by the Adult Literacy Project director to our technical assistance group, which would aid in the preparation of a presentation of the project and its results to the Joint Dissemination Review Panel in Washington, D.C. Presentation of the project to this panel could result in the project's being named a National Diffusion Project, which could bring further validation, attention, and funding to the project and enable the LEAP software to reach more adult basic education students.

It is also recommended that the technology of the LEAP I and

LEAP II programs and the results of its testing with students be further disseminated to adult basic education professionals, associations, and publications. This would include education professionals on both the local and national levels.

The development of the Basic Holistic Writing Scale for use with this grant (see Appendix B) provides another resource for adult basic educators. This scale may be used to evaluate the writing skills of adult basic education students. It is recommended that this scale be utilized again in a future field test and that the scale and its use become a subject for dissemination. Toward this end, and article is in preparation stages for publication.

The promising results of previous pilot and field testing have led Adult Literacy Project personnel to believe that LEAP I and LEAP II consititute an instructional system which is useful to educators and beneficial to students. It is hoped that widening recognition and use of the LEAP series can be accomplished during the coming year.

REFERENCES

Block, G. H. (1984). Computers in the language arts: Are we ready for the future? Computers, Reading and Language Arts, II(1), 6-7.

Fisher, G. (1984). The social effects of computers in education. Electronic Learning, 3(6), 26-28.

Hall, M. A. (1976). Teaching reading as a language experience (2nd ed.). Columbus: C. E. Merrill.

Hall, M. A. (1979). Language-centered reading: Premises and recommendations. Language Arts, 56, 664-670.

Schwartz, J. I. (1975). A language experience approach to beginning reading. Elementary English, 52, 320-324.

Sheehy, G. Passages. (1976). New York: Bantam Books, Inc.

Spache, G. D., & Spache, E. B. (1973). Reading in the elementary school (3rd ed.). Boston: Allyn & Bacon.

APPENDIX A

Publications

A MICROCOMPUTER APPROACH TO DEVELOPING FUNCTIONAL LITERACY AMONG ADOLESCENTS AND ADULTS

Accepted for publication in Computers in the Schools (in press)

Elaine G. Wangberg, Ph.D.
Associate Professor and Director,
Adult Literacy Project
Department of Curriculum & Instruction
University of New Orleans
New Orleans, LA 70148
(504) 286-6533

The program described herein was developed with funds from the Louisiana State Department of Education through the U.S. Department of Education. The author wishes to acknowledge the work of Mary Frances Ready, Wilma S. Longstreet, Bruce Thompson, and Patricia Meisner of the University of New Orleans. Justin E. Levitov, Loyola University, and Michael J. Meisner, MJM Enterprises, in the development of this software.

This project has been named a "High Quality Educational Program" by the U.S. Department of Education 1984 Search Effort.

A MICROCOMPUTER APPROACH TO DEVELOPING FUNCTIONAL LITERACY AMONG ADOLESCENTS AND ADULTS

Illiteracy is not a diminishing problem in the United States. Recent studies show that approximately 25 million Americans are functionally illiterate (Meyer, 1982). In the past, functional literacy was considered to be reading ability at a fifth grade level; however, our changing society has raised the level of literacy required for survival. The U.S. Department of Education estimates, using the findings of a federally funded study in 1975 by the University of Texas at Austin and 1980 census data, that up to 72 million Americans have difficulty with the basic tasks required by society today (Toch, 1984). About one out of five Amercans cannot read or write well enough to cope with the demands of daily life (Shearer, 1984 & Toch, 1984).

While gains have been made in the field of adult basic reading instruction, further research and development in the areas of instructional techniques, materials and evaluation is needed. In general, techniques used for such instruction closely parallel the traditional approaches used in the schools, although adult basic education teachers usually try to achieve a higher degree of individualization (Cranney, 1983).

A great need exists for innovative methods and materials to promote basic reading and writing abilities among older students. One possible avenue may be through the use of the microcomputer.

Although some software has been developed to promote beginning reading abilities, most of this uses a "skill and drill" approach (with which one might question the need for the

use of a microcomputer instead of, for example, the traditional workbook). There is little existing software that utilizes an interactive approach, employing the full capabilities of the microcomputer, and allowing the learner to be actively involved in highly individualized interactions with the microcomputer. With interactive software, the learner can engage in "conversations for learning" with the microcomputer. Wray (1983) has stated that interactive microcomputer instruction could provide the humanistic, relevant approach so critical to adult education.

Another problem with existing software is that most of those programs designed to promote beginning reading abilities have been designed for younger students. In developing curriculum for older learners, it is important that their maturity, needs and interests are considered.

MICROCOMPUTER LESSONS FOR ILLITERATE LEARNERS

The following will describe an attempt to develop and pilot a series of interactive software lessons designed to increase the reading and writing abilities of illiterate adolescents and adults. This project has been named a "High Quality Educational Program" by the U.S. Department of Education, 1984 Search Effort. The Language Experience Approach (Allen, 1972; Hall, 1976) provides the basis of these software lessons, developing reading and writing abilities simultaneously.

The Language Experience Approach is not a skill and drill nor a phonics approach. Instead, this approach asks learners to express their thoughts, feelings and experiences. These

expressions are then used as the text material for each learner's instructional activities. In this way, the material to be read is relevant and interesting to the learner, and a beter "match" is provided between the learner's language and background experiences and the material to be read. Such an approach recognizes the particular strengths the older student brings to the reading task, and is highly individualized. In past uses of the Language Experience Approach prior to the microcomputer, a great deal of teacher time was required. The project being described has tried to minimize this problem with the development of interactive, language experience based software.

The software lessons we have developed begin with two keyboarding lessons, designed to introduce the microcomputer keyboard in a gamelike, but not childish, manner. Next, the language experience lessons of the program present the learner with a list of general topics of interest to adolescents and adults, such as "friends," "job," "hopes and dreams."

After the student chooses one of these topics, he or she is prompted by random computer-generated questions to input information about the topic into the microcomputer. The text input of the learner is then stored on each student's disk. Later, this text will be edited by the teacher and the student at the Teacher Station, and the edited text will become permanently stored on the student disk. This edited text will be used as the basis for a number of instructional activities, such as cloze procedures, sentence combining, and sentence scrambles which the software is programmed to develop for each student. Thus, every

student receives highly individualized instruction and reinforcement based on his or her own text input. Optional audio tapes, automatically activated by the microcomputer, accompany each lesson for those students who need help in reading lesson instructions.

Each successive lesson offers the student the opportunity to reread the prior lesson's text, the choice of a new topic, and an instructional activity generated by the software using the student's previously inputted and edited text. This software also includes a simple line editor, that students can choose to use to make changes or corrections in their text, and a spell check program, that students can use to check for spelling errors.

At the end of each lesson the student moves to the Teacher Station, where teacher and student produce a printout. This printout includes the student's original text, this text as edited by the student and teacher together, an alphabetical list of the words used by the student, and follow-up activities. The Teacher Station concept provides interaction between student and teacher as well as individualized instruction from the teacher. Student printouts become both a record of student work and the format for follow-up instruction, such as the workbook or the worksheet are in more traditional instruction.

PRELIMINARY STUDIES

Because of the nature of adult education, evaluation efforts are more difficult than evaluation efforts in traditional public school settings. Adults or older adolescents are not required to

attend classes and choose their own times to attend. Therefore, attendance is often irregular.

Two pilot studies with students enrolled at an adult education center in the inner city of a large southeastern metropolitan area were initially conducted using the instructional software. Sixteen students, aged 17 to 58, were involved in the first study. Students volunteered to be pretested for entrance into the pilot study, and those scoring between grade one and grade five on the Nelson Reading Test, Form B, entered the program. Project instruction was offered three times a week, one hour at a time, for five weeks. Post-test results, using the Nelson Reading Test, Form A, showed an average of one-half year growth after an average of nine lessons, or approximately nine hours of instruction. The pretest range was grade 1.5 to 5.3. The post-test range was 2.1 to 6.3. The range of individual student growth was -.2 to 1.2.

During this first pilot study, "bugs" were identified for correction. The second pilot study occurred after these corrections were made and used the same volunteer and pretest approach for entrance into the project. The Woodcock Reading Mastery Tests, Word Comprehension and Passage Comprehension, were used as pre and post instruments, however, as the Nelson Reading Test had appeared to be somewhat outdated. The age range of students was similar to the first field test. Attendance was more irregular during this study, perhaps due to summer months. The average gain for the six pilot students was approximately four months after an average of eleven lessons, or approximately

eleven instructional hours. The pretest range was grade 1.9 to 4.6, and the post-test range was 2.1 to 5.8. Individual student growth in reading ability ranged from .0 to 1.2.

Following these pilot studies, a field test was conducted using an experimental and a control group made up of students attending an Urban League Street Academy located in the same southeastern metropolitan area. This Academy serves older adolescent dropouts and adults who do not have a high school diploma or a G.E.D. These students ranged in age from 17 to 26.

All enrolled students were pretested using the Degrees of Reading Power Test (DRP) Test, published by the College Entrance Examination Board, 1983. This test was chosen for a number of reasons: it is up-to-date, appropriate in content for older students, and has an emphasis on reading comprehension. Raw scores are converted to mid-instructional DRP scores, measured in DRP units. Growth is interpreted by comparing pre and post DRP unit scores. DRP scores are converted to grade level scores using the DRP test's national norming tables. It must, of course, be remembered that grade level scores should not be overemphasized when working with older than normal grade level students, as in the present study.

After pretesting, the 59 students scoring at grade six or below were then stratified according to reading ability into a low grouping (DRP score of 40 or below), a middle grouping (DRP score of 41 to 50), and a high grouping (DRP score of 51-55). The subjects for the control and experimental groups were then selected from these stratified groupings by random number

assignment. These subjects were then assigned randomly by coin toss to the experimental or the control group. For purposes of this study, a student was considered a subject of the study if both pre and post test scores could be gathered. Attendance and attrition were problematic with this group of subjects.

The experimental group consisted of 10 subjects whose scores on the pre tests ranged from 30 to 54, with a mean of 43. DRP scores for this group on the post tests ranged from 41 to 63, with a mean of 52 after an average of approximately 12 hours of microcomputer instruction using the software lessons previously described. Growth in DRP units ranged from -2 to +19. The mean DRP scores for the experimental group were equated to the fiftieth percentile of the DRP normative grade levels. This conversion indicated a mean reading level of grade five at the time of the pre test and a mean of grade seven at the post test.

The control group consisted of 13 subjects scoring between 28 and 55 on the pretest, with a mean of 41. DRP scores for the control group on the post test ranged from 29 to 76, with a mean of 47 after an average of approximately 12 hours of traditional reading/language arts instruction. Growth in DRP units ranged from -4 to +21. If one equates DRP scores to the fiftieth percentile of a normative grade level according to DRP norming tables, the mean reading level of this group was grade five on the pretest and grade six on the post test.

Comparing reading growth of the experimental and the control groups, the experimental group gained three more mean DRP units (9 versus 6), resulting in a mean gain of two normed years of

reading ability versus one normed grade level for the control group.

These findings are, of course, necessarily limited by the number of students involved in each study. Irregular attendance and attrition also affect the findings, possibly in a negative manner, but this seems, unfortunately, to be the reality of adult education.

CONCLUSIONS

Although our findings thus far are only preliminary, we can share certain observations. Our experiences during the these studies showed initial student responses on the microcomputers were hesitant and slow, especially for the older students. However, all students became comfortable at the microcomputers. We can tentatively suggest that the self-confidence of these learners appeared to increase as they worked with this program. The students demonstrated initiative and independence by quickly finding their disks or printouts at the beginning of each session and in getting and remaining "on task." Similar gains in self-confidence and motivation as a result of microcomputer instruction have been reported by others (Fisher, 1984).

Student comments such as, "He always remembers what I say," and "Micro, I like talking with you," were not uncommon. While we might have expected younger students to "personify" the computer, it was somewhat surprising to see older adolescents and adults doing so. Our observations thus far seem to suggest the microcomputer can have an almost therapeutic effect, providing highly personalized interaction and instruction that may lead to

more positive attitudes toward oneself and toward learning to read and write.

Future plans for evaluating this software include hopes for more carefully controlled student attendance and the evaluation of growth in writing as well as reading abilities.

It appears that a microcomputer approach to instruction combined with appropriate software offers a promising tool for promoting basic reading and writing abilities among illiterate students. The microcomputer can increase the degree of individualization possible, aiding the teacher in providing individualized lessons and allowing increased opportunity for effective teacher/student interaction without detracting from the instruction available to other students in the class. Moreover, it appears that interactive, "personable" software may help develop more positive student attitudes toward learning. Given such possibilities, microcomputer approaches to instruction should be carefully studied as avenues for transforming and improving instruction, and the application of the microcomputer for high need, disadvantaged students should not be overlooked.

REFERENCES

Allen, R.V. (1972). A new approach to reading. In W.H. Miller (Ed.), Elementary reading today--selected articles. New York: Holt, Rinehart & Winston

Cranny, A.G. (1983). Two decades of adult reading programs: Growth, problems, and prospects. Journal of Reading, 5, 416-22.

Fisher, G. (1984). The social effects of computers in education. Electronic Learning, 3(6), 26-28.

Meyer, V. (1982). Teaching reading as a search for meanings: Helping the whole student. Paper presented at the International Reading Association Convention, Chicago.

Hall, M. (1976). Teaching reading as a language experience. Columbus, OH: Merrill.

Ragsdale, R. (1982). Computers in the schools. Informal series/45. Ontario: The Ontario Institute for Studies in Education.

Shearer, L. (1984). Barbara Bush - the nation's second lady. Parage Magazine, 16.

Toch, T. (1984). America's quest for universal literacy. Education Week, 4(1).

Wray, D. (1983). Computer-assisted learning in language and reading. Reading, 17, 31-36.

DIRECTIONS AND DEVELOPMENTS IN MICROCOMPUTER APPLICATIONS IN THE SCHOOLS

Published in The Clearing House, 58 (9), May, 1985, 384-6.

Article deleted due to copyright restrictions

Elaine G. Wangberg, Ph.D.
Associate Professor
Department of Curriculum & Instruction
University of New Orleans
New Orleans, LA 70148
(504) 286-6533

Evaluating An Interactive, Language Experience Based Microcomputer Approach to Reduce Adult Illiteracy

Elaine G. Wangberg, Ph. D.
Associate Professor and Director,
Adult Literacy Project
The Graduate School
University of New Orleans
New Orleans, LA 70148
(504)286-6835

The author wishes to acknowledge the contributions of Dr. Wilma Longstreet, Mary Frances Ready, Particia Meisner, Kathleen Busick, Michael Meisner, Dr. Bruce Thompson of the University of New Orleans, and Dr. Justin Levitov, Loyola University of the South, to the development of this software.

Presented at the Adult Education Research Conference, Tempe, AZ, March 24, 1985.

(Submitted for Publication)

MICROCOMPUTER APPROACH TO REDUCE ADULT ILLITERACY

The problem of illiteracy in the United States remains critical. There is a need for the development and evaluation of more effective methods and materials to promote basic reading and writing abilities among older students. The use of microcomputers with appropriate software could offer a means of meeting the needs of illiterate adults, allowing the learner to be actively involved in individualized and often personalized interactions with the computer and, thus, extending the reach of the teacher. Early studies evaluating the use of two series of interactive, languages experience based software have shown growth for each involved experimental group.

Evaluating An Interactive, Language Experience Based Microcomputer Approach to Reduce Adult Illiteracy

Introduction

The problem of illiteracy in the United States remains critical. In 1984, an estimated 27 million adult Americans could not read and write well enough to qualify for jobs or make full use of their potential to lead productive and satisfying lives. In addition, it is estimated that 45 million adult Americans have only marginal reading and writing skills. This means that approximately 72 million Americans, aged 17 and older, are illiterate or nearly so ("National Adult Literacy Campaign," 1984). In response to these numbers, the federal government, business, volunteer agencies, and libraries have become more involved in efforts to reduce illiteracy.

Although progress has been made in the field of adult basic education, further research and development of programs, methods, and materials is needed. Furthermore, it is necessary that these be developed with the needs of older learners in mind. This population has probably not experienced much earlier success with traditional methods of schooling, often has vision, hearing and other physical difficulties, and attends instructional sessions when these fit into daily life schedules.

These learners need highly individualized, supportive programs of an adult nature. They may also need larger print on textual materials, tests and answer sheets. Certain adaptations for hearing may need to be made, and for some older learners

writing with pen and pencil may be difficult. Many of these learners may also have nonstandard language pattens.

The instructional use of microcomputers with illiterate adults could offer a means of individualizing instruction and of meeting certain other needs. If properly programmed, a microcomputer approach could provide some of the necessary emotional support. There is evidence that microcomputers are often not as available for slow and/or disadvantaged students as they are for more advantaged students, and that very little quality software is being produced for less advantaged populations (Podemski, Husk & Jones, 1983). This inequity is unfortunate, because the microcomputer can be programmed to be a patient, supportive tutor and, as such, could be effective with high need students.

There is also very little software of high quality available for the development of basic reading and writing abilities. Most existing software utilizes a skill and drill approach with which one might question the need for a computer instead of the traditional workbook or ditto page. What is needed is software which would employ the full capabilities of the microcomputer and would allow the learner to be actively involved in highly individualized and often personalized interactions with the computer. Wray (1983) has stated that interactive microcomputer instruction could provide the humanistic, relevant approach so critical to adult basic education students.

The purpose of the project to be described was the development of interactive, language experience based software to promote functional literacy among adults.

This program has been named a "High Quality Educational Program" by the U. S. Department of Education, 1984 Search Effort.

The language experience approach (Hall, 1976; Allen, 1972) integrates the development of reading and writing skills, and allows the learner to use experiences, interests and thoughts to produce text which will become the basis for further instruction. This approach, therefore, "matches" the learner's language patterns and background experience with the material to be used for instruction. A former disadvantage of the language experience approach, however, was the amount of teacher time required. The project being described uses the microcomputer with language experience based software to aid the teacher in providing highly individualized instruction to illiterate learners.

Methodology

Design of the Software

Two series of interactive software lessons designed to promote functional literacy among illiterate adults have been developed for use on the TRS-80 microcomputer, Model III or 4. The software lessons begin with two keyboarding lessons, designed to introduce the keyboard in a gamelike manner. Next, the language experience lessons of the first series (designed for students reading between grade 1.5 and grade 5) present the learner with a list of general topics of interest to adults. After choosing a topic, the student is prompted by random, computer generated questions to input information about the topic into the computer. The text input of the learner is stored on each student's disk to later be edited by the teacher and the student at a microcomputer/printer station,

after which the edited text will be permanently stored on the student disk. This edited text will be used as the basis for a number of instructional activities, all emphasizing a meaning-based approach to reading instruction. These instructional activities are developed by the software using each student's edited text from each previous lesson. Optional audio tapes, automatically activated by the microcomputer, accompany each lesson for those students who need help in reading lesson instructions.

The second series requires a reading ability of grade 3.5 to 7.9 and serves as a bridge between the students served by the first series and students nearing readiness for the General Equivalency Degree. The language experience lessons of the second series presents learners with situations or survival topics from daily life and encourage the learner to input original text regarding these into the microcomputer. This input is then extended through questions and prompts generated by the microcomputer. Each language experience lesson in this series is accompanied by an audio cassette to provide students with an introduction to potentially new or difficult words used in the lesson. As in the first series, after each lesson the student goes to the teacher or an aide at a microcomputer/printer station where the lesson's text is edited by the teacher and the student together. A printout is generated which includes the student's original text, the edited text, a list of words used that day by the student, and follow-up activities.

Both series contain simple line editors which students can

choose to use to edit their own text input. There are two teacher software programs for each series: the first is a teacher editing program, or word processor, and the second includes programs for generating follow-up instructional activities. Each series includes student lesson disks, teacher disks, audio tapes, a teacher's manual, documentation, and the Adult Basic Word List (Wangberg, Thompson & Levitov, 1984).

Pilot Studies

Pilot studies were conducted with both software series at an Adult Education Center located in the inner city of a large southern metropolitan area. In a study of the first series, 16 students, aged 17 to 58 and scoring between grade 1.5 and grade 5.0 on pretests using the Nelson Reading Test, showed an average of one-half year growth after an average of 9 lessons.

A second study of this software series used the Woodcock Reading Mastery Tests, Word Comprehension and Passage Comprehension, for pre and post instruments as the Nelson Reading Test had appeared to be somewhat dated. The age range of students was similar to the first study. Attendance was more irregular in this study, perhaps due to summer months. Six students were available for post testing and averaged 4 months' growth in reading ability after an average of 11 lessons. The Woodcock test also had certain disadvantages for this project, being individually administered and depending on oral student responses which might discriminate against nonstandard speakers or ESL students.

The second software series was piloted using the Degrees of

Reading Power (DRP) test, Levels 6 and 8, Forms A and B, for pre and post instruments. This test was chosen for a number of reasons: it is current, normed with a sample representative of national characteristics, appropriate in content for older students, emphasizes reading comprehension, and does not overrely on grade level score comparisons. The latter should not be overemphasized with older learners, as their ages are not typical of the school aged normative samples used for most standardized tests. In addition, the DRP does not require time limits for testing. Since older subjects tend to respond more slowly than younger subjects, time limits may lower their scores and not indicate true ability (Sheehy, 1976).

In scoring responses on the DRP, raw scores are converted to mid-instructional reading level DRP scores, measured in DRP units. A DRP unit is a numerical representation of reading comprehension. Test forms range from grade 3 through grade 14 reading ability, but these grade recommendations are approximate because each form measures a wide range of reading ability. Each test form is equated to all other DRP test forms, and all results are reported on a common scale. Unlike conventional standardized tests, which use different tasks in different grades and assume a normal distribution of abilities in each grade, the DRP uses a single reading task (similar to Cloze passages) and makes no assumptions concerning the distribution of abilities within grades. This provides important flexibility in assigning an appropriate test level for a given student.

Growth is interpreted by comparing pre and post DRP unit scores. If desired, DRP unit scores can be converted to grade

level scores using the DRP national norming tables. These grade level scores indicate the student has fallen at or very near the fiftieth percentile for that grade on DRP norming conversion tables.

The first pilot of the second software series showed a mean gain of 8 DRP units, or one grade level, for the 10 study subjects after an average of 8 lessons.

The second pilot study with this series used a control group. Each group contained 9 students, aged 17 to 67 years. DRP scores on the pretest for the Experimental Group ranged from 41 to 67, with a mean of 55.2. DRP scores for the Control Group on the pretest ranged from 39 to 65, with a mean of 54.3. On the post test, scores for the Experimental Group ranged from 53 to 73, with a mean of 63. Post test scores for the Control Group ranged from 44 to 69, with a mean of 58.7. The Control Group gained an average of 4.4 DRP units, while the Experimental Group gained an average of 7.8 DRP units. DRP national norming tables were used to convert DRP scores to grade level equivalents. The Experimental Group gained one normed grade level in reading ability, while the Control Group did not show a change in normed grade level.

Field Testing

An eight week field test using a control and an experimental group was then designed to evaluate this software. The design included a DRP pretest for both groups, traditional reading/language arts instruction or the experimental microcomputer software instruction, followed by an alternate form DRP post

test. The sample population was drawn from the student population enrolled at an Urban League Street Academy for high school dropouts and adults without high school degrees. Student ages ranged from 18 to 27. All 84 enrolled students were pretested with the Degrees of Reading Power test, Levels 6 and 8.

Fifty-nine students fell within our range of interest, receiving DRP unit scores between 30 and 55. DRP norm tables suggest this would correspond to reading levels of approximately grade 3 to grade 7. Students scoring lower or higher than this were not further considered to be part of the sample, as the lower scores were on the extreme low end of the DRP and, therefore, likely to be less valid, and students scoring above grade 7 were likely to profit more from instructional programs designed for better readers.

These 59 student pretests were ordered by DRP score and stratified into three groups: low (DRP of 30 to 40); mid (DRP of 41-50); and high (DRP of 51-55). The maximum size instructional group was determined to be 20 students due to the number of microcomputers available. The study sample of 40 students was drawn equally from these three groups (13 low, 14 mid, and 13 high) using a table of random numbers. Forty of these subjects were then assigned randomly by coin toss to the Experimental or the Control Group.

An eight week period of instruction occurred for each group. The Control Group received traditional reading/language arts instruction, and the Experimental Group received language experience based microcomputer instruction. Average total hours of instruction for the Control Group was 22.1. Average total

hours of instruction for the Experimental Group was 21.7.

Findings

Both attendance and attrition tend to be areas of difficulty in adult basic education research and instruction. Because students are not required to attend instructional sessions, attendance tends to be irregular, and attrition rates are high. In this study, 10 of the Control Group students were available for post testing, and 11 of the Experimental Group students were available.

The mean pretest score for the Control Group was 40.9 DRP units, equivalent to grade 5, with a range of 28 to 55 DRP units. The mean pretest score for the Experimental Group was 42.5 DRP units, also equivalent to grade 5, with a range of 30 to 54 DRP units. The mean post test score for the Control Group was 43.5, with a range of 29 to 57 DRP units; and the mean post test score for the Experimental Group was 48.1, with a range of 36 to 59 DRP units. The average gain in reading ability for the Control Group was 2.6 DRP units; the average gain for the Experimental Group was 5.6 DRP units. If one wished to convert this to show grade level growth, the Control Group showed no change in grade level, and the Experimental Group showed a one year increase to grade 6.

Discussion

While the sample size is small and attrition a problem, this field test as well as previous pilot studies indicate that a microcomputer approach utilizing appropriate instructional software can hold promise for promoting functional literacy among illiterate adults. Test results and observation also indicate

that language experience based software is appropriate for improving the reading abilities of this population.

Our observations indicated that many of these learners were somewhat afraid of the microcomputer at first. Some of the young adults had "fortified" themselves with certain substances before the first few days of instruction as reported by their teacher and our observation. This decreased after one or two days as the students began to relax and enjoy the microcomputer. Some of the older adults in pilot studies were hesitant and slow at first but became comfortable with the microcomputer and, in fact, were some of the most regularly attending and serious students. For a number of older adults, "typing" into the microcomputer was easier than writing with pen or pencil.

The self-confidence of the subjects appeared to increase as they progressed through the program. Discipline was no problem which surprised their regular teacher who reported different behavior with traditional classroom instruction with some of the same subjects. The students demonstrated initiative and independence by quickly finding their disks or printouts at the beginning of each session and in getting and remaining "on task." Similar gains in self-confidence and motivation as a result of microcomputer instruction have been reported by others (Fisher, 1984).

Comments such as "Micro, I like talking with you," and "He always remembers what I say," were frequent. While we might have expected younger students to personify the computer, it was somewhat surprising to see older learners doing so. The computer appeared to have an almost therapeutic effect on many students,

providing highly personalized instruction and interaction which seemed important and effective with these learners. These effects are not due to the computer alone -- they depend on the software being used.

All of these pilot and field test studies are, of course, necessarily limited. The number of subjects in each study is not large, and the attrition rate is problematic--a typical difficulty with adult basic education research. We can, however, see that each experimental group did show growth. While additional evaluation is necessary, it appears that the microcomputer, used with appropriate software, may provide hope for extending the reach of the teacher with high need students, providing a greater degree of individualization than was previously possible. This should allow teachers additional instructional opportunities, freeing them from some of the routine tasks of student instruction and allowing them to concentrate on individual instruction without detracting from the level of instruction available to other members of the class.

Used in this way, the microcomputer can become more than a novelty and more than a tool. The microcomputer used with high quality software can extend the power of the teacher and the student truly becoming an "instrument of education and of educators" (Block, 1984).

References

Allen, R.V. (1972). A new approach to reading. In W. H. Miller (Ed.). Elementary reading today -- selected articles. New York: Holt, Rinehart and Winston Inc.

Block, G. H. (1984). Computers in the language arts: are we ready for the future? Computers, Reading and Language Arts, II (1), 6-7.

Fisher, G. (1984). The social effects of computers in education. Electronic Learning, 3 (6), 26-8.

Hall, M. (1976). Teaching reading as a language experience. Columbus, Ohio: Merrill.

National adult literacy campaign to kick-off in December. (1984). AAACE Newsletter 2 (6) 3.

Podemski, R., Husk, S. & Jones, A. (1983). Micros and the disadvantaged. Electronic Learning, 2 (6), 20-22.

Sheehy, G.(1976). Passages. New York: Bantam Books, Inc.

Wangberg, E. G., Thompson, B., & Levitov, J. (1984). First steps toward an adult basic word list. Journal of Reading, 28 (3), 244-47.

Wray, D. (1983). Computer-assisted learning in language and reading. Reading, 17, 31-36.

APPENDIX B

Basic Holistic Writing Scale

DEVELOPING A BASIC HOLISTIC WRITING SCALE TO IMPROVE THE WRITING OF REMEDIAL ADOLESCENTS

Elaine G. Wangberg, Ph.D.
Associate Professor and
Director, Adult
Literacy Project
University of New Orleans
Department of Curriculum and
Instruction
New Orleans, LA 70148
(504)286-6835

Mary K. Ruetten, M.A.
Assistant Professor and
Chair, Freshman English
University of New Orleans
(504)286-6273

The authors wish to acknowledge the contributions of Patricia Meisner and Kathleen Busick, graduate students at the University of New Orleans, to this project.

BASIC HOLISTIC WRITING SCALE
Sample Prompts

A.
Read the following.
Choose one of the topics.
Write as much as you can about it.

1. We have all had times when we have done something to be proud of. Other people may not know about it, but we do. I remember one time when I felt very proud of myself.

2. Weather can sometimes change your plans. Maybe there is a flood and school is cancelled. Maybe a hurricane is coming. Or maybe it is just really hot outside. I remember once when the weather changed my plans. This is what I did that day.

B.
Read the following.
Choose one of the topics.
Write as much as you can about it.

1. I like sports and I like to go to games with my friends. I always have fun, but I'll tell you about the best time I ever had at a game.

2. I am not afraid of many things. Recently, though, I had an experience that frightened me very much.

C.
Read the following
Choose one of the topics.
Write as much as you can about it.

1. I am often a very busy person. Sometimes I don't have time to do what I want to do. But I remember one day that was very special when I did just what I wanted.

2. Sometimes you have a day when everything seems to go wrong. I had a day like that not long ago.

Basic Holistic Writing Scale
Scoring Sheet

Rate all items Low (1) Middle (2) High (3)

I. Content
- A. Voice/Writer's stance _____
- B. Audience _____
- C. Purpose _____
- D. Development _____
- E. Details/Wording _____
- F. Quality of Ideas _____

II. Organization
- G. Beginning/Middle/End _____
- H. Cohesion/Coherence/Transitions _____
- I. Paragraphing _____

III. Usage and Mechanics
- J. Sentences _____
- K. Usage _____
- L. Punctuation _____
- M. Spelling _____

ID# _____ SECTION# _____

SECOND READER _____ TOTAL _____

- -

I. Content
- A. Voice/Writer's stance _____
- B. Audience _____
- C. Purpose _____
- D. Development _____
- E. Details/Wording _____
- F. Quality of Ideas _____

II. Organization
- G. Beginning/Middle/End _____
- H. Cohesion/Coherence/Transitions _____
- I. Paragraphing _____

III. Usage and Mechanics
- J. Sentences _____
- K. Usage _____
- L. Punctuation _____
- M. Spelling _____

ID# _____ SECTION# _____

FIRST READER _____ TOTAL: _____

FINAL SCORE: _____

Basic Holistic Writing Scale

Analytic Scale for Holistic Scoring of Writing Samples

Low 1
Middle 2
High 3

I. Content

A. Sense of voice; the writer's stance

H. Individual, clear, consistent
M. Bland, general, sometimes confusing, absent at times
L. Absent most of the time

B. Sense of audience

H. Clear, sustained and controlled (consistantly attempts to engage reader)
M. Unclear; sometimes present
L. Absent most of the time

C. Purpose

H. Clear; incidents well chosen
M. Unclear at times; the relationship of incidents to purpose not clear at times
L. Unclear; incidents show little relationship to purpose

D. Development

H. Sufficient to support main ideas
M. A moderate amount; ideas not fully supported
L. Insufficient

E. Details and Wording

H. Effective, concrete, interesting
M. Some effective, concrete, interesting details
L. Mostly absent; ineffective, flat and uninteresting

F. Quality of ideas about the incident or topic

H. Imaginative, original, perceptive, insightful
M. Mostly predictable; shows some originality
L. Unimaginative, unoriginal, predictable

II. Organization

G. Beginning/middle/end

H. Logical sequencing (of narrative); clear sense of beginning, middle, closing
M. Moderately logical sequencing (of narrative); moderate sense of beginning, middle,closing
L. Illogical sequencing (of narrative); no sense of beginning, middle, closing

H. Cohesion/coherence/transition

H. Effective throughout
M. Some present
L. Absent or inappropriate

I. Paragraphing

H. Intentional and effective
M. Attempted; intentional and effective at times
L. Absent

III. Usage and mechanics

J. Sentences

H. Mature; variation in length and pattern; few if any structural weaknesses; good sense of sentence boundary
M. Some variation in length and pattern; some structural weaknesses; some sense of sentence boundary
L. No variation in length and pattern; many structural weaknesses; no sense of sentence boundary

K. Usage

H. Reasonable mastery of Edited American English; consistent verb and tense agreement; correct case and number; correct word choice (don't penalize for spelling)
M. Some mastery of Edited American English; consistent verb tense agreement; correct case and number; some correct word choice
L. Little mastery of Edited American English; little consistency in verb and tense agreement; little correctness in case and number; incorrect word choice

M. Spelling

H. Correct spelling of common words; mostly correct spelling of others
M. Mostly correct spelling of common words; some correct spelling of others
L. Frequent incorrect spelling

LOUISIANA STATE DEPARTMENT OF EDUCATION
P. O. BOX 44064
BATON ROUGE, LOUISIANA 70804

SPECIAL EXPERIMENTAL DEMONSTRATION PROJECT
ADULT EDUCATION PROGRAM
FINAL EXPENDITURE REPORT

INSTRUCTIONS: An original and three signed copies are to be submitted within thirty days following termination of the project.

MAIL TO:
Louisiana State Department of Education
P. O. Box 44064
Baton Rouge, Louisiana 70804

DE FORM 513-D

CONTRACTOR OR GRANTEE (Name and address)
University of New Orleans
Lakefront
New Orleans, LA 70148

DEPT. OF ED. CONTRACT OR GRANT NUMBER
ABE 7-85

FISCAL YEAR OF AWARD: 1985
PHASE:

PERIOD OF CONTRACT OR GRANT
From 7/1/84 To 7/31/85

PART I – EXPENDITURES	AMOUNT BUDGETED (a)	ACTUAL EXPENDITURES (b)	BALANCE (Col a minus Col b) (c)
A. DIRECT COSTS – ALL SOURCES			
1. PERSONNEL SALARIES	$		
A. PROJECT DIRECTOR	30,453	$ 28,782	
B. OTHER KEY PERSONNEL, IF ANY	18,000	20,569	
C. INSTRUCTIONAL STAFF AND COUNSELORS (No. Full Time ; No. Part Time)			
D. CONSULTANTS (No.)	4,450	4,200	
E. SECRETARIAL AND CLERICAL (No.)			
F. OTHER SUPPORTING STAFF (No.)	2,000	1,070	
G. SUBTOTAL FOR PERSONNEL SALARIES	$ 54,903	$ 54,621	$ 282
2. OTHER DIRECT OPERATING COSTS			
A. TRAVEL	$ 1,300	$ 903	$ 397
B. EQUIPMENT (Rentals and purchases)	473	473	
C. MINOR REMODELING OF SPACE			
D. OTHER EXPENSES (SUM OF (1) THROUGH (6))	1,700		1,700
(1) REQUIRED FEES, IF ANY		( )	
(2) EMPLOYMENT SERVICES AND BENEFITS		( )	
(3) COMMUNICATION COSTS		( )	
(4) SUPPLIES, PRINTING, AND PRINTED MATERIALS	1,700	( )	
(5) RENTAL OF SPACE		( )	
(6) UTILITIES AND CUSTODIAL SERVICES (If not included in any other item of this section and/or in indirect costs)		( )	
E. SUBTOTAL – OTHER DIRECT OPERATING COSTS	$ 560	$ 2,670	$ (2,110)
3. TOTAL DIRECT COSTS (Sum of Lines 1G and 2 E)	$ 58,936	$ 58,667	$ 269
B. COST SHARING			
1. CONTRIBUTIONS OF GRANTEE	$ 7,000	$ 7,000	$
2. CONTRIBUTIONS FROM OTHER SOURCES	560		560
3. TOTAL COST SHARING	$ 7,560	$ 7,000	$ 560
C. TOTAL STATE DIRECT COSTS (Line A3 minus line B3)	$ 51,376	$ 51,667	$ (560)
D. INDIRECT COSTS (Not to exceed 8 percent of Total State Direct Costs, Line C)	4,424	4,133	291
E. TOTAL STATE FUNDS EXPENDED (Line C plus Line D)	$ 55,800	$ 55,800	$ - 0 -

PART II – CASH SUMMARY	
A. TOTAL AMOUNT OF GRANT	$55,800
B. TOTAL STATE GRANT FUNDS EXPENDED (Same as Part I, Line E, column b)	55,800
C. TOTAL GRANT FUNDS RECEIVED FROM STATE	55,800
D. BALANCE DUE CONTRACTOR OR GRANTEE AGENCY (or refund due State Government)	$ - 0 -

I CERTIFY THAT ALL OF THE INFORMATION CONTAINED HEREIN IS CORRECT TO THE BEST OF MY KNOWLEDGE

SIGNATURE OF PROJECT DIRECTOR	DATE	SIGNATURE OF FISCAL OFFICER AUTHORIZED TO REPRESENT GRANTEE AGENCY	DATE
Claire B. Wadsworth	9/25/85	Linda K. Robison	9/25/85

Linda K. Robison
Comptroller

EXHIBIT D

BEST COPY AVAILABLE

Adult Literacy Project 1984-85 University of New Orleans

Equipment and Materials Purchased with Project Funds

Equipment

- Epson Geneva PX-88 lap computer
- Cable to connect lap computer to printer
- Repair parts for existing computer equipment

Materials

- Keys and hasps to secure project materials
- Statistics reference book
- Reading materials for field test subjects
- Snack supplies for field test subjects (second field test required the students miss their normal school lunch)
- Film and development for photographs for dissemination
- Microcassettes for Epson PX-88
- Subscriptions to reading and microcomputer journals